

IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A communications system, comprising:
 - a transmission unit 100-comprising:
 - a noise source 110-for generating a noise signal;
 - a signal generator 120-connected to the noise ~~source~~ ~~generator~~ 110-and generating a colored noise-like preamble from at least the noise signal;
 - a modulator 130-connected to the signal generator 120-for modulating the colored noise-like preamble;
 - a switching device 150-having at least a first input 152, a second input 154 and an output 156, the first input 152-being connected to the modulator 130;
 - an ISM spread spectrum modulator 160-connected to the second input 154 of the switching device 150-and providing an ISM transmission signal; and
 - a transmitter 170-connected to the output of the switching device 156-wherein when the switching device 150-is in a first position the colored noise-like preamble is provided as a transmitter output signal and when the switching device 150-is in a second position the ISM transmission signal is provided as the transmitter output signal wherein the colored noise-like preamble is transmitted by the transmitter before the ISM transmission signal;
 - a receiving unit 500-comprising:
 - an antenna 510-for receiving the transmitter output signal transmitted by the transmission unit 100, the antenna 510-adjusting an antenna pattern for improving reception of the transmitter output signal by the transmission unit 100;
 - a signal processor 515-connected to the antenna 510, the antenna 510-producing an antenna output signal including the antenna pattern and the transmitter output signal, the signal processor 570-evaluating the antenna output signal and determining at least the presence of the colored noise-like preamble in the antenna output signal.

2. (currently amended) The communications system of Claim 1, wherein the signal processor 515-comprises:

a downconverter 520-connected to the antenna 510-for downconverting the antenna output signal;

an ISM receiver 540-connected to the downconverter 520-for receiving the antenna output signal and receiving the ISM transmission signal when the ISM transmission signal is present in the antenna output signal;

a sampler 550-connected to the downconverter 520-for sampling the antenna output signal;

a one-bit quantizer 560-connected to the sampler 550-for quantizing the antenna output signal into one-bit segments; and

an arc-sine law processor 570-connected to the one-bit quantizer 560-and antenna 510-for determining the presence of the colored noise-like preamble in the antenna output signal and the arc-sine law processor 570-instructing the antenna 510-to at least cause movement of the antenna pattern.

3. (currently amended) The communications system of Claim 2, wherein the receiving unit 500-further comprises a capacitor 530-connected between the downconverter 520-and the sampler 550-for removing any DC levels in the antenna output signal.

4. (currently amended) The communications system of Claim 1, wherein the noise source 410-comprises a broadband noise source.

5. (currently amended) The communications system of Claim 1, wherein the transmitting unit 400-further comprises an antenna 480-connected to the transmitter 470-wherein the transmitter 470-drives the antenna 480-with the output signal.

6. (currently amended) The communications system of Claim 1, wherein the antenna 510-comprises a plurality of antennas 610, 620-for receiving the transmitter output signal transmitted by the transmission unit 400-and the receiving unit 500-further comprising an ISM receiver 540-connected to the signal processor for receiving the antenna output signal and receiving the ISM transmission signal when the ISM transmission signal is present in the antenna output signal.

7. (currently amended) The communications system of Claim 6, wherein the antenna output signal comprises a sum beam 710-and a difference beam 730, the signal processor 515-receiving the sum beam 710-and the difference beam 730-and the signal processor 515-comprising:

a first delay unit 712-connected to the plurality of antennas 610, 620-and receiving the sum beam 710, the first delay unit 712-delays the sum beam 710;

a first complex conjugator 714-connected to the first delay unit 712-for conjugating the sum beam 710-and providing a first conjugator output signal;

a first multiplier 716-connected to the first complex conjugator 714-and receiving the sum beam 710, the first multiplier 716-multiplying the sum beam 710-with the first conjugator output signal to produce a first multiplier output signal;

an first integrator 720-connected to the first multiplier 716-and integrating the first multiplier output signal and providing a first integrator output signal;

a monopulse producing module 750-connected to the first integrator 720;

a second delay unit 732-connected to the plurality of antennas 610, 620-and receiving the difference beam 730, the second delay unit 732-delays the difference beam 730;

a second complex conjugator 734-connected to the second delay unit 732-for conjugating the difference beam 730-and providing a second conjugator output signal;

a second multiplier 736-connected to the second complex conjugator 734-and receiving the sum beam 710, the second multiplier 736-multiplying the sum beam 710

with the second complex conjugator output signal to produce a second multiplier output signal; and

a second integrator 740-connected to the second multiplier 736-and the monopulse producing module 750, the second integrator 740-integrating the second multiplier output signal and providing a second integrator output signal wherein the monopulse producing module 750-calculates an angle of arrival from the first integrator output signal and the second integrator output signal.

8. (currently amended) A system for short range communications, comprising:

a transmitter 170-capable of transmitting a colored noise-like preamble;
a receiver 540-for receiving the colored noise-like preamble and including an antenna 510-with an antenna pattern, a direction of the antenna 510-being controllable by the receiver 540; and
a signal processor 515-connected and responsive to the receiver 540-for detecting and estimating the strength of the colored noise-like preamble.

9. (currently amended) The system of Claim 8, wherein the antenna pattern comprises a spatial null adapted to be oriented electronically.

10. (currently amended) The system of Claim 8, wherein the signal processor is adapted to implement an arc sine law.

11. (currently amended) The system of Claim 8, wherein the colored noise-like preamble is composed of interleaved sequences of samples of colored noise.

12. (currently amended) The system of Claim 8, wherein the transmitter 170 comprises an ISM transmitter.

13. (currently amended) The system of Claim 8, wherein the receiver 540 comprises an ISM receiver.

14. (currently amended) A system for short range communications, comprising:

a transmitter 170-capable of transmitting a colored noise-like preamble;
a receiver 540-for receiving the colored noise-like preamble and including at least two antennas 610, 620-having at least two output signals, wherein each of the two output signals are independently provided; and
a signal processor 515-connected to the receiver 540-and combining the at least two antenna output signals.

15. (currently amended) The system of Claim 14, wherein the signal processor 515-combines the at least two antenna output signals to mitigate an interference signal.

16. (currently amended) The system of Claim 14, wherein the signal processor 515-combines the at least two antenna output signals to enhance reception of the colored noise-like preamble.

17. (currently amended) The system of Claim 14, wherein the transmitter 170-comprises an ISM transmitter.

18. (currently amended) The system of Claim 14, wherein the receiver 540 comprises an ISM receiver.

19. (new) A system for short range communications, comprising:
 - a transmitter capable of transmitting a colored noise-like preamble;
 - a receiver for receiving the colored noise-like preamble and including at least one antenna with an antenna pattern, a direction of the antenna being controllable by the receiver; and
 - a signal processor connected and responsive to the receiver for detecting and estimating the strength of the colored noise-like preamble, and for causing reorientation of the antenna pattern of the at least one antenna based upon the preamble strength.

20. (new) The system of Claim 19, wherein the antenna pattern comprises a spatial null adapted to be oriented electronically based upon the preamble strength.